

PATENT SPECIFICATION

(11)

1 412 379

1 412 379

- (21) Application No. 43107/73 (22) Filed 13 Sept. 1973
 (61) Patent of Addition to No. 1 408 645 dated 11 Dec. 1972
 (31) Convention Application No. 2 244 767 (32) Filed 13 Sept. 1972 in
 (33) Germany (DT)
 (44) Complete Specification published 5 Nov. 1975
 (51) INT. CL.² G03B 1/16
 (52) Index at acceptance
 G2A 401 403 433 625 631 678 MD

(19)



(54) IMPROVEMENTS IN AND RELATING TO CAMERAS

- (71) We, AGFA - GEVAERT AKTIENGESELLSCHAFT, a body corporate organised according to the Laws of Germany, of Leverkusen, Germany, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:
- 10 The invention relates to a camera for use with roll film and including film transport drive means, a differential mechanism for transmitting force from the film transport drive means to two outputs one of which comprises a film spool drive means, for metering the amount by which a film has been advanced, a locking member for the other output the arrangement being such that during film transport the locking means is arranged in engagement with the second of the outputs and, when the film has been advanced by a predetermined amount, the film metering means is arranged to cause the locking member to disengage from the other output to lock the one output.
- This arrangement which has been described and claimed in U.K. Patent Application 57076/72 (Serial No. 1 408 645) is suitable and reliable as long as it is ensured that the film cannot be prevented from moving by any kind of influence before the locking means has released the said other output. If, for example, a supplementary locking means which prevents film from being torn out of a film cassette at its end causes the film to be stopped before completion of a full frame advance, however, in such a case both outputs are prevented from moving simultaneously and the result is that disturbance or even damage can be caused to the film or the camera.
- The present invention provides, in a camera of the type described above, an
- [Price 33p]

overload coupling so arranged between the input and the outputs that, if both outputs are prevented from operating, the overload coupling is arranged to allow operation of the input.

Advantageously, the input is connected to one output by means of a friction drive so that, if both outputs are prevented from operating, the friction drive permits operation of the input. Preferably, one of the outputs comprises two co-axial gearwheels so coupled by a friction drive that if one of the gearwheels is prevented from moving the other can move under the action of the input. The said one output is preferably, the second output.

One form of camera constructed in accordance with the invention will now be described, by way of example, with reference to the accompanying drawing, which is a sectional view of part of the camera.

Referring to the accompanying drawing a component 110 forms a film transport handle. At the same time, this carries shafts 118 on which planet gears 119 are supported. A ratchet pawl is arranged to engage with a locking toothed section 110a.

The transport handle 110 may protrude from the camera housing at one corner. Each gearwheel 119 engages both with a gearwheel 116a of an assembly 116/117, a locking toothed section 117a of which is arranged to cooperate with a retaining member 125, and with an internal toothed portion 122a of a gearwheel 122 which co-operates with a spool dog 126. The retaining member 125 is in turn so arranged that it locks the gear 117 when a feeler co-operating with film perforations has not engaged a perforation. When the feeler has engaged a perforation, the retaining member releases the gear 117. The retaining member 125 is thus controlled by means of a known feeler, one perforation being

provided for each frame on the film, into which the feeler drops to control the retaining member and out of which it is lifted again during or after an exposure. The film transport is terminated not by locking of the film transport handle 110 but by the fact that the gearwheel 116/117 is released to rotate and the gearwheel 122 comes to rest under the influence of friction and the traction of the film.

As shown in Figure 5 of U.K. Patent Application No. 57076/72 (Serial No. 1 408 645), the gearwheels 116/117 are of one-piece construction. This arrangement is suitable and reliable as long as it is ensured that the film cannot be locked by any kind of force before the feeler has dropped into a perforation. If, for example, a supplementary locking means which prevents the film from being torn out of a film cassette at its end can cause the film to be held before the feeler has dropped into a perforation both outputs 116/117 and 122 are locked. If, in spite of this, the handle 110 is actuated further with full force, this can lead to considerable damage to the mechanism or to the film being torn out of the cassette, depending on which gives way first. It is intended to eliminate this disadvantage by means of the present improvement.

For this purpose the gearwheels 116/117 are no longer of one-piece construction but are divided into two parts, with a friction drive provided between the two. As shown in the accompanying drawing, the shaft stub of the gearwheel 116 is in the form of a square 116c on which a bearing 127, having flanges, is non-rotatably supported. Between the flanges 127a and 127b lies the gearwheel 117 and a frictional spring 128. If both outputs 122 and 117 are now prevented from operating, since the retaining member 125 is still engaged with a gearwheel 117 and the film is held at its end by a locking means, the drive force of the wheel 110 becomes greater than the frictional force of the friction drive 128. The gearwheel 116, together with the bearing 127, now simply slides relative to the gearwheel 117, so that neither the film nor the mechanism can be damaged. The force of the friction member must thereby be less than the force at which the film would tear or the mechanism would be damaged.

Any known arrangement of a slip friction clutch can be used between the gearwheels 116 and 117, not just the one particularly shown. The same effect could also be achieved, however, by providing instead of the friction drive 128 a friction drive either between the handle 110 and the coupling 118/119 or between the gearwheel 122 and the film spool drive 126.

WHAT WE CLAIM IS:—

1. A camera for use with roll film and including film transport drive means, a differential mechanism for transmitting force from the film transport drive means to two outputs one of which comprises a film spool drive means, means for metering the amount by which a film has been advanced, a locking member for the other output and an overload coupling arranged between the input of the differential mechanism and the outputs, the arrangement being such that during film transport the locking means is arranged in engagement with the second of the outputs and, when the film has been advanced by a predetermined amount, the film metering means is arranged to cause the locking member to disengage from the other output to lock the one output and if both outputs are prevented from operating the overload coupling is arranged to permit operation of the input.
2. A camera as claimed in claim 1, wherein the input is connected to one of the outputs by means of a friction drive so that, if both outputs are prevented from operating, the friction drive permits operation of the input.
3. A camera as claimed in claim 1 or claim 2, wherein one of the outputs comprises two co-axial gearwheels so coupled by a friction drive that if one of the gearwheels is prevented from moving the other can move under the action of the input.
4. A camera for use with roll film and including a film transport mechanism substantially as hereinbefore described with reference to, and as shown in, the accompanying drawing.

ABEL & IMRAY,
Chartered Patent Agents,
Northumberland House,
303-306 High Holborn,
London, WC1V 7LH.



provided for each frame on the film, into which the feeler drops to control the retaining member and out of which it is lifted again during or after an exposure. The film transport is terminated not by locking of the film transport handle 110 but by the fact that the gearwheel 116/117 is released to rotate and the gearwheel 122 comes to rest under the influence of friction and the traction of the film.

As shown in Figure 5 of U.K. Patent Application No. 57076/72 (Serial No. 1 408 645), the gearwheels 116/117 are of one-piece construction. This arrangement is suitable and reliable as long as it is ensured that the film cannot be locked by any kind of force before the feeler has dropped into a perforation. If, for example, a supplementary locking means which prevents the film from being torn out of a film cassette at its end can cause the film to be held before the feeler has dropped into a perforation both outputs 116/117 and 122 are locked. If, in spite of this, the handle 110 is actuated further with full force, this can lead to considerable damage to the mechanism or to the film being torn out of the cassette, depending on which gives way first. It is intended to eliminate this disadvantage by means of the present improvement.

For this purpose the gearwheels 116/117 are no longer of one-piece construction but are divided into two parts, with a friction drive provided between the two. As shown in the accompanying drawing, the shaft stub of the gearwheel 116 is in the form of a square 116c on which a bearing 127, having flanges, is non-rotatably supported. Between the flanges 127a and 127b lies the gearwheel 117 and a frictional spring 128. If both outputs 122 and 117 are now prevented from operating, since the retaining member 125 is still engaged with a gearwheel 117 and the film is held at its end by a locking means, the drive force of the wheel 110 becomes greater than the frictional force of the friction drive 128. The gearwheel 116, together with the bearing 127, now simply slides relative to the gearwheel 117, so that neither the film nor the mechanism can be damaged. The force of the friction member must thereby be less than the force at which the film would tear or the mechanism would be damaged.

Any known arrangement of a slip friction clutch can be used between the gearwheels 116 and 117, not just the one particularly shown. The same effect could also be achieved, however, by providing instead of the friction drive 128 a friction drive either between the handle 110 and the coupling 118/119 or between the gearwheel 122 and the film spool drive 126.

WHAT WE CLAIM IS:—

1. A camera for use with roll film and including film transport drive means, a differential mechanism for transmitting force from the film transport drive means to two outputs one of which comprises a film spool drive means, means for metering the amount by which a film has been advanced, a locking member for the other output and an overload coupling arranged between the input of the differential mechanism and the outputs, the arrangement being such that during film transport the locking means is arranged in engagement with the second of the outputs and, when the film has been advanced by a predetermined amount, the film metering means is arranged to cause the locking member to disengage from the other output to lock the one output and if both outputs are prevented from operating the overload coupling is arranged to permit operation of the input.

2. A camera as claimed in claim 1, wherein the input is connected to one of the outputs by means of a friction drive so that, if both outputs are prevented from operating, the friction drive permits operation of the input.

3. A camera as claimed in claim 1 or claim 2, wherein one of the outputs comprises two co-axial gearwheels so coupled by a friction drive that if one of the gearwheels is prevented from moving the other can move under the action of the input.

4. A camera for use with roll film and including a film transport mechanism substantially as hereinbefore described with reference to, and as shown in, the accompanying drawing.

ABEL & IMRAY,
Chartered Patent Agents,
Northumberland House,
303-306 High Holborn,
London, WC1V 7LH.